

Claims:

1. An air supply system for a heavy motor vehicle brake system comprising:
  - a compressor for supplying compressed air;
  - 5 an air dryer connected to receive compressed air from said air compressor including a desiccant bed through which the compressed air can flow to provide a clean and dry compressed air source for operating the brake system;
  - a secondary reservoir;
  - a housing connecting said air dryer and said secondary reservoir together
  - 10 as a unitary module;
  - a primary reservoir located away from said secondary reservoir;
  - control components disposed in said housing for controlling air flow from said air compressor through said air dryer for charging said primary reservoir and said secondary reservoir with compressed air;
  - 15 a purge volume formed integral with said secondary reservoir; and,
  - said control components also control air flow from said purge volume through said air dryer desiccant bed to atmosphere to purge said air dryer.
2. An air supply system as claimed in claim 1 comprising:
  - a pressure equalizing mechanism disposed between said secondary
  - 20 reservoir and said primary reservoir for equalizing the pressure in said secondary reservoir and said primary reservoir.
3. An air supply system as claimed in claim 1 comprising:
  - a primary pneumatic protection control valve disposed within said housing for controlling pneumatic pressure fed to said primary reservoir; and,
  - 25 a secondary pneumatic protection control valve disposed within said housing for controlling the pneumatic pressure fed to said secondary reservoir.
4. A compressed air system for a heavy motor vehicle comprising:
  - an air compressor providing a source of compressed air;
  - a housing having an inlet connected to receive compressed air from said
  - 30 air compressor;

an air dryer securely fastened to said housing;

a secondary compressed air reservoir securely fastened to said housing forming with said housing and said air dryer a module;

a primary compressed air reservoir having a pneumatic connection to said housing disposed remote from said module;

said module including control components and connections for controlling compressed air flow between said air dryer and said secondary compressed air reservoir and said primary compressed air reservoir; and,

a pressure equalizing mechanism disposed between said secondary reservoir and said primary reservoir for equalizing the pressure in said secondary reservoir and said primary reservoir.

5. A compressed air system as claimed in claim 4 comprising:

a purge volume formed integral with said secondary reservoir; and,

said control components also control air flow from said purge volume through said air dryer desiccant bed to atmosphere to purge said air dryer.

6. An air dryer assembly for providing compressed air from an air compressor on a heavy motor vehicle comprising:

an air dryer connected to receive compressed air from said air compressor;

a first air reservoir separate from said air dryer;

a housing containing pneumatic circuit components for controlling the flow of compressed air from said air compressor through said air dryer to said first reservoir having said air dryer and said first reservoir securely attached thereto for securing said air dryer and said first reservoir together as a module;

a second air reservoir having a pneumatic connection to said housing disposed remote from said first air reservoir;

a first pressure protection valve disposed within said housing for controlling charging of said first reservoir;

a second pressure protection valve disposed within said housing for controlling charging of said second reservoir; and,

a pressure mechanism disposed between said first reservoir and said second reservoir for equalizing the pressure in said first reservoir and said second reservoir.

7. A compressed air system for a heavy vehicle pneumatic braking system comprising:

an air compressor for supplying compressed air when loaded and for not supplying compressed air when unloaded;

a primary reservoir;

a secondary reservoir located away from said primary reservoir;

an air dryer connected to receive compressed air from said air compressor including a desiccant bed through which the compressed air can flow to provide a clean and dry compressed air source to said primary reservoir and said secondary reservoir for operating the brake system and being connected to said secondary reservoir to form an air dryer and reservoir module;

a check valve disposed between said air dryer and said primary and secondary reservoirs and being part of said air dryer and reservoir module; and,

a purge volume being part of said secondary reservoir for purging said desiccant bed when said air compressor is unloaded.

8. A compressed air system for a heavy vehicle pneumatic braking system as claimed in claim 7 system comprising:

a pressure equalizing mechanism disposed between said secondary reservoir and said primary reservoir for equalizing the pressure in said secondary reservoir and said primary reservoir.

9. A compressed air system for a heavy vehicle pneumatic braking system as claimed in claim 8 system comprising:

a primary pressure relief valve being part of said air dryer and reservoir module, being disposed between the outlet of said check valve and said primary reservoir, and being set to open when the applied pressure exceeds a first pressure and to close when the applied pressure falls below a second lower pressure.

10. A compressed air system for a heavy vehicle pneumatic braking system as claimed in claim 9 system comprising:

a secondary pressure relief valve being part of said air dryer and reservoir module, being disposed between the outlet of said check valve and said secondary reservoir, and being set to open when the applied pressure exceeds a first pressure  
5 and to close when the applied pressure falls below a second lower pressure.